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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 14

Application Number: 08/997,368
Filing Date: 12/23/97
Appellant(s): Himuro

Neil B. Siegel
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed 5/3/00.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The after final amendment filed 5-3-00 has not been entered.

The after final amendment filed 6-14-00 has been entered.

(5) Summary of Invention

The summary of invention contained in the brief is deficient because it incorrectly describes the chamfer.

In the brief filed 5-3-00, appellant states: "...each of the blocks has a chamfer. This a tapering of the block surface so that the overall **height** of the block is reduced. The block has **its highest point at the tapered top end**. It is then tapered over a discrete length, 10-30 mm

in a longitudinal direction of the block so that the block overall **height** generally decreases." (emphasis added). Appellant also states: "Block rigidity can thus be enhanced by reducing the depth of the block itself, that is the height of the block from a groove bottom" (page 3 of brief).

The description of the chamfer in the Brief filed 5-3-00 is the opposite to that disclosed in the original disclosure by the inventor Himuro. FIRST: The original disclosure repeatedly describes the chamfer with respect to "depth" instead of "height". The original disclosure, for example, describes:

> ...each of the blocks ... is chamfered from a tapered top end over a range of 10-30 mm toward a longitudinal direction of the block so as to gradually shallow a **depth** of a surface of the block from the tapered top end toward the longitudinal direction (page 3, emphasis added)

and

> ...each of the blocks ... is chamfered from the tapered top end over a range of 10-30 mm toward the longitudinal direction of the block so as to gradually shallow the **depth** of the block surface from the tapered top end toward the longitudinal direction as mentioned above (page 5, emphasis added)

and

> ...Each of the blocks 3 ... is chamfered from the tapered top end over 25 mm toward the longitudinal direction of the block so as to gradually shallow the **depth** of the block surface from the tapered top end toward the longitudinal direction as mentioned above... (page 9, emphasis added.

Also, see use of the word "depth" to describe the chamfer on pages 10-11 (last line of page 10) of the original specification, original claim 1, and appealed claim 1. SECOND: The depth of the surface of the block *does not equal* to the height of the surface of the block. One of ordinary skill in the art would readily understand that the depth of the surface of the block is

measured between the tread surface and the surface of the block whereas the height of the surface of the block is measured between the groove bottom and the surface of the block. It is noted that describing the surface of the block using depth as an alternative to height is not ambiguous since (a) the chamfer causes the tread to have a recess thereat and (b) the dimensions of grooves, which are recesses, are commonly described using "depth". THIRD: Appellant's description of the block being chamfered so that the "block has its **highest point** at the tapered top end" (emphasis added) is inconsistent with the ordinary meaning of chamfer which is to cut off the edge or corner of. Chamfering of a block removes material of the block. Chamfering of a block fails to add material to a block.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: There is no 35 USC 112 second paragraph issue since the 35 USC 112 second paragraph rejection has been withdrawn in view of the after final amendment filed 6-14-00 which has been entered.

(7) Grouping of Claims

The rejection of claims 1-10 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

In the Brief filed 5-3-00, appellant states: "The claims stand rejected as a group. The patentability of claims 1-10 can be assessed by considering the patentability of the broadest claim, claim 1."

(8) Claims Appealed

A substantially correct copy of appealed claims 1, 8 and 9 appears on pages 2 and 3 respectively of the Appendix to the appellant's brief. The minor errors are as follows: The appendix to the appellant's brief does not incorporate the changes in the after final amendment filed 6-14-00 which has been entered. A correct copy of all of the appealed claims 1-10 is included in Appendix I of this Examiner's Answer.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

627,332	Europe '332	Dec. 7, 1994
705,718	Europe '718	April 10, 1996
5-319025	Japan '025	Dec. 3, 1993
6-40215	Japan '215	Feb. 15, 1994
688,685	Europe '685	Dec. 27, 1995

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe '332 (EP 627332) in view of Europe '718 (EP 705718) and Japan '025 (JP 5-319025) and optionally either Europe '685 (EP 688685) or Japan '215 (JP 6-40215).[1]

Europe '332, directed to a low noise tire for motor vehicles, discloses a pneumatic radial tire (for example 205/ 50-R-15) having a tread comprising blocks. See abstract and column 5 line 39. The blocks are defined by longitudinal grooves and transverse cuts. Europe '332 teaches that longitudinal grooves and transverse cuts cooperate in performing an efficient draining action of the water from the imprinting area of the tire during running on a wet road surface. See column 1 lines 31-35. In particular, Europe '332 discloses a tread comprising blocks defined "circumferential grooves" (2) and "slant grooves" (13) which are defined by "first slant grooves" (8) as a whole. Grooves 2 are circumferentially extending grooves since

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[1]Each of Europe '718, Japan '025 and Japan '215 have the same inventor as this application. Each of Europe '718, Japan '025 and Japan '215 are available as prior art under 35 USC 102(b) since each of these references were published more than one year before the filing date of this application. With respect to Europe '718, also see 35 USC 119 which states "...but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the actual filing date of the application in this country..."

they are grooves which extend in the circumferential direction. The circumferential center groove reads on a longitudinal groove 2 between block 7 of the inner central row 3 and rib 11. Europe '332 shows a circumferential groove 12 at the equatorial plane of the tire. However, none of the claims exclude a circumferential groove 12 at the equatorial plane of the tire or require the claimed circumferential groove to be at the equatorial plane of the tire. Each "slant groove" includes (a) a "steeply slant groove" which is inclined at an impact angle α of 15 to 25 degrees and (b) a "gently slant groove" which is inclined at 70 to 105 degrees. The "steeply slant groove" (8) opens to a longitudinal groove 2 as illustrated in figure 1. At this opening, the block 7 has an acute angle corner portion. The "gently slant groove" opens to a tread end (tread edge) as illustrated in figure 1 and described at column 6 lines 7-20. Europe '332 teaches that the "slant groove" (13) is continuous and exhibits "... an extension substantially devoid of interruptions thus allowing the water to easily flow towards the outer side of the tread 1." (column 6 lines 18-20). Europe '332 also shows additional "gently slant grooves" (9) parallel to and between the "gently slant grooves" (8) so the number of "gentle slant grooves" is two times or more the number of "steeply slant grooves". Europe '332 provides more gently slant grooves than steeply slant grooves so that the number of blocks at a side zone of the tread is greater than the number of blocks at a central zone of the tread to reduce rolling noise. Specifically, Europe '332 discloses that the number of shaped blocks 7 arranged in each row gradually increases on passing the equatorial plane to the side edges of the tread so that a gradual increase in the longitudinal stiffness of the shaped blocks is achieved on passing

from the side edges of the tread to the equatorial plane which brings about a reduction in the mobility of the blocks on the imprinting area and a greater quietness of the tire in use. See abstract, column 3 lines 1-21, column 7 lines 28-30, and column 8 line 47 to column 10 line 22. Europe '332 recognizes that stiffness of the blocks is increased toward the equatorial plane by using larger blocks in the inner central row. See column 10 lines 10-11. Europe '332 also discloses an inner portion cut 10a having a width preferably lower than 1 mm. This cut 10a having a width of less than 1 mm is provided in the blocks in a "side zone of the tread". The "sipe" in claim 1 reads on the cut 10a having a width of less than 1 mm as described by Europe 332. Europe '332 discloses the tread as either having a non-directional tread pattern or a directional tread pattern. The non-directional tread pattern is illustrated in figure 1. The directional tread pattern is described at page 10 lines 41-45. For example: a tread having the right side of the equatorial plane X-X being a mirror image of the illustrated left side of figure 1 defines a directional tread since the mirror image causes the transverse grooves to converge in the same direction in a central region of the tread.

Hence, with respect to the five criteria described in claim 1 (the "improvement"), Europe '332 discloses:

- criteria #1 (see transverse grooves 13 comprising aligned first transverse cuts 8);

- criteria #2 (see transverse grooves 13, longitudinal grooves 2, column 1 lines 31-35, column 6 lines 17-20);

- criteria #3 (see for example column 7 lines 28-30); and

- criteria #4 (see cuts 10a which has a width less than 1 mm).

With respect to criteria #4, which recites "each of the blocks is provided with at least one sipe", the antecedent basis for "the blocks" in criteria #4 is found in criteria #2 which describes "blocks in said side zones". Europe '332 does not disclose criteria #5. In other words, Europe '332 does not disclose chamfering each block defined by a center groove and the steeply slant grooves.

Europe '718 discloses a pneumatic radial tire having good drainage property. Europe '718 disclose a tread comprising main slant grooves wherein each main slant groove comprises a steeply slant segment (a steeply slant groove) inclined at an angle of 0-30 degrees and a gently slant segment (a gently slant groove) inclined at an angle of 60-90 degrees. The main slant grooves communicate with each other to form a "circumferential groove" at the center C as illustrated in figure 1 and described at page 3 lines 53-54. Each land portion 9 is chamfered. In particular, a surface height of a tapered zone of each land portion 9 is gradually decreased toward a top side thereof with a range of 10-30 mm in the lengthwise direction of the tapered zone. See figure 2. Europe '718 teaches that chamfering of the tapered zone (the acute angle portion of the land portion) beneficially **smoothens bifurcation running of water discharged, ensures rigidity and acts to develop excellent steering stability**. See for example page 3 lines 46-51. The chamfer can be linear or rounded. See page 2 lines 38-41. The rounded chamfer is illustrated in figure 2. Europe also suggests forming sipes 14 in the land portions. The sipes 14 are **for improving the ground contact property of the tire and**

improving the edge effect. One of ordinary skill in the art readily understands from this teaching of Europe '718 that sipes are added to the land portion to improve traction. Traction is improved because each sipe creates additional edges (increases edge effect) at the surface of the tread. At page 5 line 9, Europe '718 states: "These sipes 14 do not obstruct the continuity of the land portion 12."

Japan '025 discloses a pneumatic tire comprising a tread including a center circumferential groove and "slant grooves". Each "slant groove" comprises a "steeply slant groove" (4) and a "gently slant groove" (3). See figure 1. Japan '025 discloses chamfering the corner part 8 defined by a steeply slant groove and the circumferential groove 1 over 5-30 mm (see shaded area) **so that the tire can be improved in its deflected abrasion characteristics and be avoided from lopsided wear resulting in a longer life**. See abstract and figures. The chamfer can be linear or rounded. See figures 2 and 3.

As to claims 1 and 4, it would have been obvious to one of ordinary skill in the art to chamfer the acute angle corner portion of each block (land portion) of Europe '332 which is defined by a center circumferential groove (2) and steeply slant grooves (8) in view of (a) Europe '718's teaching to chamfer blocks defined by steeply slant grooves to smoothen bifurcation of water, ensure rigidity, and develop excellent steering stability and (b) Japan '025's teaching to chamfer blocks defined by steeply slant grooves to avoid wear. The secondary art to Europe '718 and Japan '025 therefore provide ample motivation (smoothen bifurcation of water / develop excellent steering stability / avoid wear) to chamfer as claimed.

As to each block having a sipe, note portion 10a of Europe '332 which has a width of less than 1 mm. IN ANY EVENT: As to claim 1, it would have been obvious to provide sipes in the blocks of Europe '332 as set forth in claim 1 in view of: (a) Europe '332's teaching to include a "sipe" (portion 10a) in a block in a side zone, (b) Europe '718's teaching to include sipes in blocks in a central zone of a tread to improve traction and optionally (c) the arrangement/orientation of sipes suggested by Europe '685 or Japan '215. The applied prior art therefore provides ample motivation (improved traction) to provide the claimed sipes. Use of such sipes is consistent with Europe '332's teaching to increase stiffness from the tread edges to the equatorial plane since (a) one of ordinary skill in the art would readily understand that uniform application of sipes could not alter the change in stiffness desired by Europe '332 and (b) one of ordinary skill in the art would readily understand that any reduction in stiffness caused by sipes can be offset by changing the size of the block - Europe '332 specifically teaching at column 10 lines 10-12 that greater stiffness results from bigger blocks. Furthermore, use of sipes is consistent with (a) Europe '332's teaching to use "sipes" 10a which have a width of less than 1 mm and (b) Europe '332's teaching to avoid impairing the tractive features of the tire. See column 3 lines 4-10.[2]

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[2]In APPENDIX II of this Examiner's Answer, "sipes" on copies of the tread patterns of the prior art are indicated in red. Also, the "slant grooves" (each of which includes a "steeply slant groove" and a "gently slant groove" are indicated in blue).

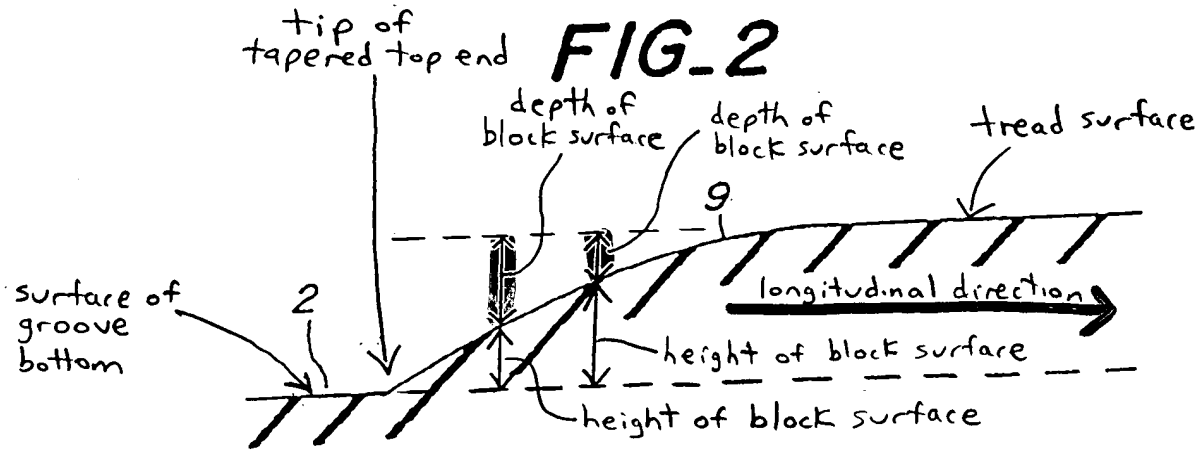
With respect to the preamble, the recitation of "for all-season passenger car" merely describes the intended use of the tire and fails to require tire structure / characteristics not shown or suggested by the prior art as applied above. With respect to the central zone and side zones, the recitation of "a central zone having a width corresponding to 30-60% of a tread width and a pair of side zones located on both sides of the central zone", fails to require tire structure / characteristics not shown or suggested by the prior art as applied above.

With respect to the dependent claims the following comments are made: As to claims 2, 3 and 5, note the "steeply slant grooves" and "gently slant grooves" of Europe '332. As to claims 6 and 7, the limitation of the circumferential side groove would have been obvious in view of Europe '332 and Japan '025's teaching to provide a "circumferential side groove" between a tread end and the equatorial plane. As to the "limitation" of claim 8, note the shape of the blocks as shown and described by Europe '332. As to claims 9 and 10, it would have been obvious to provide sipes in the blocks of Europe '332 as set forth in claim 9 or claim 10 in view of: (a) Europe '332's teaching to include a "sipe" (portion 10a) in a block in a side zone, (b) Europe '718's teaching to include sipes in blocks in a central zone of a tread to improve traction and optionally (c) the arrangement/orientation of sipes suggested by Europe '685 or Japan '215.

(11) Response to Argument

chamfering

With respect to chamfering, applicant argues, for the first time, that the tapering (chamfering) in Japan '718 and Japan '025 is "reversed to that required". (Brief page 5 last line).[3] The examiner disagrees. FIRST: Appellant's description of the tapering of the invention in the Brief filed 5-3-00 is inconsistent with that disclosed in appellant's original disclosure and appellant's claims. See above noted disagreement with the appellant's Summary of the Invention. SECOND: Japan '718 and Japan '025 suggest the same chamfering as claimed and disclosed by appellant. Below is a modified copy of figure 2 of Europe '718:



The text in the above modified figure 2 of Europe '718 has been added by the examiner. As can be seen from the above modified figure 2 of Europe '718, the height of the block surface *increases* in the longitudinal direction *from* the surface of the bottom of the groove to the tread surface whereas the depth of the block surface *decreases* in the longitudinal direction *from* the

[3]Page 9 lines 5-6 of the response filed 4-27-99 describes "depth" instead of "height"

surface of the groove bottom to the tread surface. In Europe '718, Himuro describes this surface in terms of height instead of depth but the same chamfering as that claimed in claim 1 is being described.

Appellant's argument that Europe '718 and Japan '025 instruct not to chamfer in a tread pattern as shown in figure 4 is not persuasive. Europe '718 and Japan '025 suggest chamfering an acute angle corner portion. The blocks 7 in the inner central row of Europe '332 have such an acute angle corner portion. Like the acute angle corner portion in Europe '178 and Japan '025, the acute angle corner portion in Europe '332 is defined by a steeply slant groove and a circumferential groove. Europe '718 and Japan '025 motivate one of ordinary skill in the art to chamfer such an acute angle corner portion (instead of not chamfering as argued by appellant) for the benefits of smoothen bifurcation of water / develop excellent steering stability / avoid wear. These are the same benefits as disclosed by appellant at pages 5 and 6.[4]

Appellant's argument that chamfering, if considered, would have to be applied to more than one edge of the block for purposes of consistency is not persuasive. Applicant's comments regarding chamfering of both acute angle corner portions of each block in row 3 or chamfering blocks in row 4 is irrelevant since (1) claim 1 fails to require chamfering of both acute angle corner portions, claim 1 fails to require chamfering of both acute angle corner portions on block

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[4]This application, Europe '718 and Japan '025 each have the same inventor - Yasuo Himuro. Europe '178 is an equivalent of US Patent 5,609,699 (already of record) which was allowed by the present examiner. Europe '718 was applied instead of US Patent 5,609,699 since Europe '718 is available as prior art whereas US Patent 5,609,699 is not.

in the central zone, claim 1 fails to require chamfering blocks in the side zones and (2) Europe '718 and Japan '215, like claim 1 of this application, teach chamfering an acute angle corner portion (tapered top end) located between a circumferential groove and a steeply slant groove.

Appellant argues that localized chamfering would obviously provide a degree of discontinuity from that sought in Europe '332. The examiner disagrees. FIRST: Chamfering of the acute angle portion of each block between the steeply slant groove and the circumferential groove would be expected to ensure rigidity of the blocks 7 of the inner central rows 3 (Europe '718 teaches at page 3 lines 50-51 that chamfering ensures rigidity). Contrary to appellants' arguments this increase in rigidity would be desired by Europe '332 since Europe '332 desires an increase in rigidity from the tread edge toward the equatorial plane. SECOND: Appellant's description of a "discontinuity" appears to imply that Europe '332 requires a specified mathematical / precise linear increase in rigidity from the tread edge toward the equatorial plane. Europe '332 contains no such disclosure.

Applicant argues that the tread patterns in Europe '718 and Japan '025 are highly directional whereas this directionality does not exist in Europe '718. Appellant additionally argues uniform chamfering as required for purposes of consistency create and irreconcilable difference between the directional and non-directional tread patterns which would be recognized as an inconsistency in the prior art. Appellant's arguments are not persuasive since (1) Europe '718 and Japan '025 motivate one of ordinary skill in the art to chamfer an acute angle corner of a block near the equatorial plane of the tire which is defined by a steeply slant groove and a

circumferential groove to obtain benefits of smoothen bifurcation of water / develop excellent steering stability / avoid wear and (2) as noted in this Examiner's Answer, the Final Office Action and the First Office Action, Europe '332 discloses a non-directional or directional tread (appellant has failed to comment on column 10 lines 41-45 of Europe '332).

sipes

Appellant argues, for the first time, that the secondary prior art teaches away from including sipes in the blocks of rows 3 or 4 since (1) adding sipes decreases the stiffness of the block and (2) Europe '332 teaches that the blocks close to the center line should have increased stiffness to reduce noise.[5] Appellants arguments are not persuasive for the following reasons:

FIRST: On page 8 lines 4-5, appellant appears to agree that Europe '332 includes sipes in the row 6 of blocks, but applicant provides no reason as to why claim 1 requires sipes in blocks other than "blocks in said side zones" such as blocks in row 6 of Europe '332.

SECOND: Europe '718 motivates one of ordinary skill in the art to add sipes to land portions for improving the ground contact property of the tire and the edge effect - one of ordinary skill in the art would readily understand that adding sipes to a tread increases the number of edges at the tread surface which improves traction. Appellant's argument at page 8 line 14 of the Brief that Europe '718 has no sipes whatsoever is in direct conflict with the express teachings

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[5]The word "sipe" is not even mentioned once in appellant's remarks in (1) the after final amendment filed 6-14-00, (2) the after final amendment filed 5-3-00, and (3) the amendment filed 4-27-99.

of Europe '718 to include sipes to improve edge effect (traction). In short, Europe '718 is considered to disclose both sipes and chamfering.

THIRD: Use of such sipes is consistent with Europe '332's teaching to increase stiffness from the tread edges to the equatorial plane since (a) one of ordinary skill in the art would readily understand that uniform application of sipes could not alter the change in stiffness desired by Europe '332 and (b) one of ordinary skill in the art would readily understand that any reduction in stiffness caused by sipes can be offset by changing the size of the block - Europe '332 specifically teaching at column 10 lines 10-12 that greater stiffness results from bigger blocks.

FOURTH: With respect to the optional references, Japan '215 / Japan '685 further show the desirability in the tread art of using sipes in a tread. Japan '215 to Himuro, for example, suggests various arrangements /orientations of sipes in a tread which like the tread of Europe '332 includes slant grooves wherein each slant groove has a gently slant portion and a steeply slant portion.[6] For example, Japan '215 discloses providing sipes 10 in the land portions in the tread of figure 1 (On page 4 of the translation, Japan '215 describes this figure 1 embodiment which includes sipes as being an alternative to the figure 3 embodiment which

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[6]All of the references applied include slant grooves having a steeply slant portion and a gently slant portion. Each of these references, like applicant, use such a slant groove to improve drainage. For example: See (i) column 1 lines 31-35 and column 6 lines 15-20 of Europe '332, (ii) page 3 lines 14-17 of Europe '718 to Himuro and (iii) pages 5 and 6 of translation of Japan '215 to Himuro.

does not include sipes). Since the side area S contains more siping than the center zone C (the total effective length of the sipes is greater in the side zone than the center zone C), one of ordinary skill in the art would readily expect the stiffness of the tread to increase toward the equatorial plane as desired by Europe '332.

FIFTH: The examiner is **not** asserting that the particular sipe arrangement shown in figure 1 of appellant's disclosure would have been obvious in view of the applied prior art since the examiner considers figure 1 to include allowable subject matter. See indication of Allowable Subject Matter in the First Office Action and the Final Office Action.

conclusion

The motivation to chamfer an acute angle corner portion of each of the blocks of the inner central row of Europe '332 includes **smoothening bifurcation of water, ensuring rigidity and developing excellent steering stability** as per the teachings of Europe '718 and **avoiding wear** as per the teachings of Japan '025. No modification regarding sipes (a type of cut) appears necessary. To the extent required by claim 1, the applied prior art suggests **adding sipes to increase the edge effect** to obtain the expected benefit of improved traction. No unexpected results over the applied prior art has been shown. Claim 1 fails to include the allowable subject matter indicated in the first office action.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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